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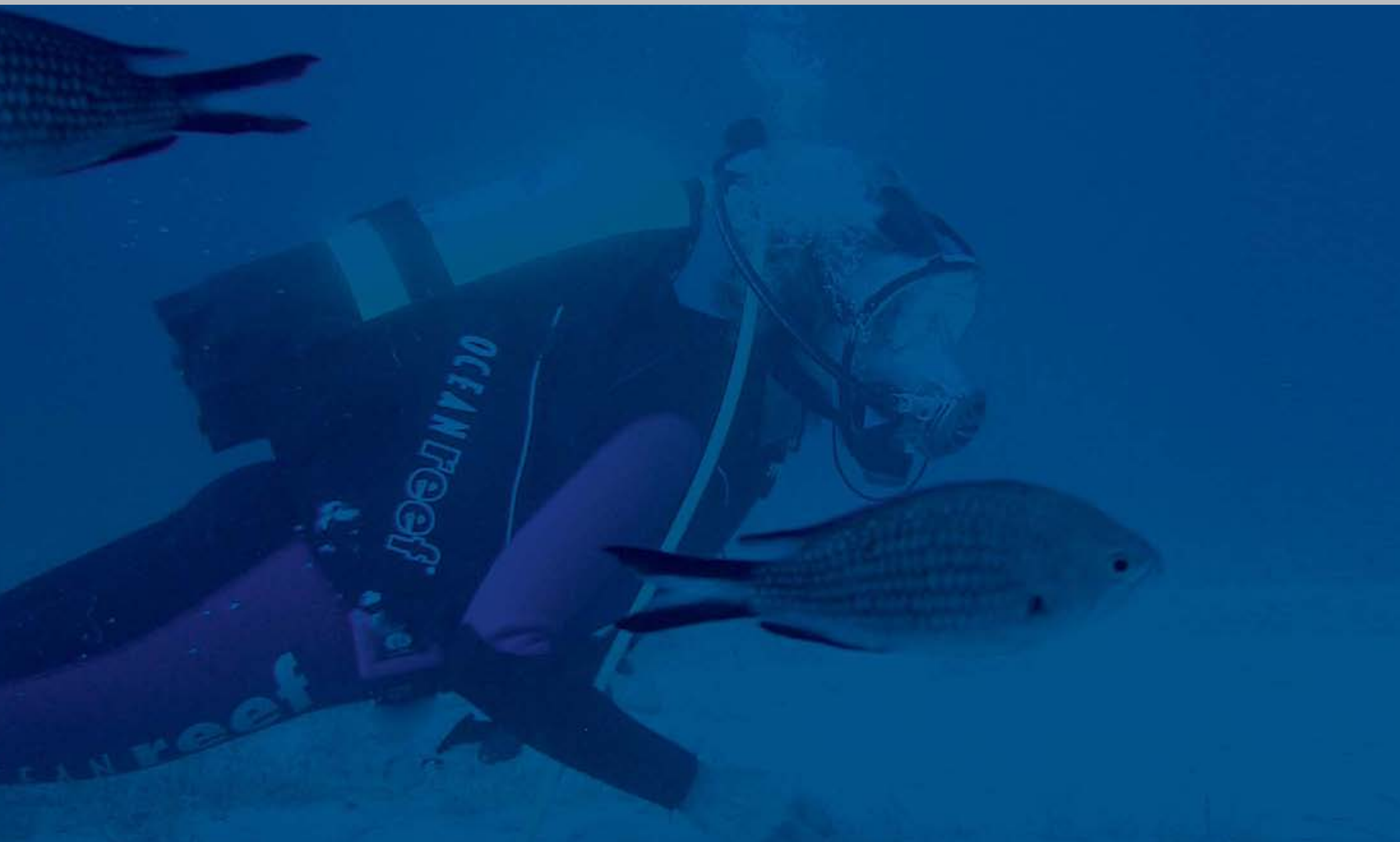
connecting divers

Neptune System 2007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Neptune System 2007

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THE NEPTUNE SYSTEM PHILOSOPHY

In the last 20 years, improvements in equipment have completely changed the way we dive by increasing safety and comfort. As a result, scuba diving has evolved from an activity for a few experts into a hobby for millions of people throughout the world.
Masks and regulators have traditionally been separate units in recreational diving. However, by keeping the mask and regulator separate, we expose the rest of the face to the elements, thus losing precious body heat. Moreover, since all humans breathe primarily through their nose, while using their mouth to communicate, it's reasonable to say that the separate mask and regulator set-up is relatively unnatural.

The Neptune System Philosophy is based on the above principles. We have created an integrated mask and regulator system and a complete system of underwater communications. By integrating these systems we solve several problems: we are more thermally efficient; we can communicate; we have a broader field of vision; and we are much more comfortable.
Now, divers have the ability to use more sophisticated systems than ever before. The Neptune System is the future of scuba diving!

Ocean REEF's revolutionary full face masks, the Neptune Series, are the product of intense research and valuable experience acquired in the development and production of military protection equipment. The surface-based versions of our full face mask have received international approval for use in the civil sector and have been adopted by specialized departments in numerous military and defense organizations for use in Nuclear, Biological, and Chemical (NBC) operations. From the Gulf Wars/Homeland security program to Antarctic expeditions, from military use to space exploration, from commercial to recreational activities, the Full Face Mask Project, which started in 1985 and involved over 50 different types of masks, has experienced a diverse range of conditions and applications.

neptune space

The Neptune Space, the latest and most innovative mask in the Neptune Series, has been designed with the technical experience gained through 10 years of full face mask manufacturing.

The Neptune Space has a state-of-the-art integrated regulator, a reduced internal volume, an improved visual field, and an integrated surface air valve. It can be used with a communication unit and various accessories. Tech polymer protection treatments allow the Neptune Space to be used in extreme conditions. The total weight of the mask is 860 g (1.89 lbs) with a positive buoyancy of 400 g (0.89 lb), creating a light and comfortable fit. The Neptune Space is specifically designed for professional and high performance applications and comes with a limited lifetime warranty.

Sizes

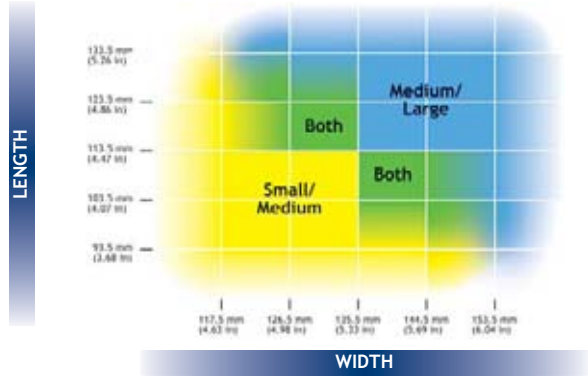
The Neptune Space is available in two sizes, Small/ Medium and Medium/Large.

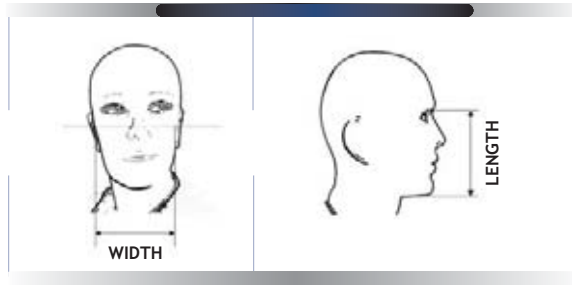
In order to determine whether a diver should wear a S/M or M/L mask, Ocean REEF has designed a Mask Measuring Kit (code 33075). The sizing and measuring system were designed in accordance with the official measuring procedure used in the Los Alamos Scientific Laboratory Charts at the SBCCOM Mask Fit Facility-Aberdeen Proving Ground (Maryland, USA). Before purchasing a mask, the customer may use the caliper to take two simple face measurements. Using the Full Face Mask Size Recommendation Chart, he or she can evaluate the size category into which the measurements fall.

>>>> Neptune Mask face seal MEDIUM/LARGE and SMALL/MEDIUM

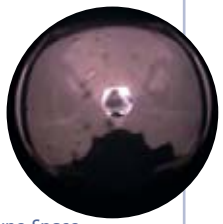
There are three different size categories on the chart: Small/Medium, Both, & Medium/Large. If the measurements fall within the Both category, then the customer should technically be able to wear either full face mask (MEDIUM/LARGE or SMALL MEDIUM), and in that case should try on a mask to select the best fit.

Please note that the chart boundaries fade. The fading areas represent less common face measurements. It is very likely that a mask will still fit comfortably even if measurements are located in these fading areas.

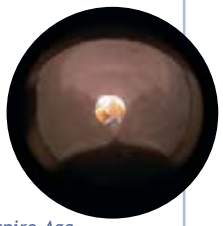




TECHNICAL CHARACTERISTICS



>>>> *Neptune Space*



>>>> *Interspiro Aga*

>>>> *Conventional Mask*

ADAPTABILITY

The patented bellows-type skirt with a "spring profile" and large sealing surface (30-45 mm, double that of a conventional mask) is molded of premium grade silicone rubber. The spring effect is achieved by a combination of the double "S" section and the inner support ribs, resulting in a comfortable fit and ample support. This allows the mask to "float" comfortably on the face. The face seal and strap concepts are Ocean REEF patents.

VISUAL FIELD

The visor, made of transparent polycarbonate, is designed to be wider and sit closer the face than previous full face masks. This design maximizes the visual field, particularly the peripheral area. The visible light transfer of the visor is 92%.

The visual field of the Neptune Space compared with one competitor's full face mask and a conventional mask.

DURABILITY AND SCRATCHING RESISTANCE

The visor of the Neptune Space can resist the impact of a 6.35 mm steel ball traveling at speeds of 540 km/hour (335 mi/hour). The visor is coated on both sides with a siloxane resin to increase the scratching resistance. For added protection during transport, the Neptune Space comes with a removable protective shield (to be removed before diving).

THE HEAD HARNESS AND FRB II

The head harness straps are directly attached to the face shield, allowing pressure to be distributed equally along the mask skirt. The six straps of the head harness hold the mask in a firm position due to their low elasticity. The tip of each strap is wider, making them easier to grasp while wearing neoprene gloves. The FRB II (Fast Rotating Buckle) allows the mask to be donned and doffed quickly.

AIR CIRCULATION

The Neptune Space air circulation system is designed to minimize fogging and reduce the amount of CO and CO_2 build-up. The silicone oral-nasal pocket is built with two one-way valves through which air is inhaled. Exhaled air is directed through a valve under the oral-nasal pocket, limiting the mixing of this air (containing high amounts of CO_2) with the fresh air from the regulator. The direction of exhaled air is controlled by a four position exhaust valve. The adjustable valve allows exhaust to flow in four directions:

A - to the left
B - to the right
C - both (direction of least resistance)
D - no exhaust

Position D, the "off" position is used when the diver is in a "head-down" position which, due to pressure on the second stage, causes the regulator to free flow. Placing the exhaust valve in the off position causes pressure to build in the mask, preventing free flow and returning the system to an "air on demand" situation.

SURFACE AIR VALVE

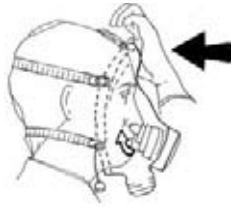
The Neptune Space is equipped with a surface air valve that allows the diver to breathe ambient air while at the surface. The surface air valve is easily adjustable with large air vents.

DRAINING AND PRESSURE EQUALIZATION

Water that may seep into the mask is easily eliminated by exhaling or pushing the "purge" button on the second stage. Mask squeeze, a common problem for conventional masks, will not occur with the Neptune Space because the pressure inside the mask is equal to the pressure outside the mask.

THE 3-D EQUALIZATION SYSTEM

The patented Ocean REEF 3-D equalization system is designed to allow equalization during a dive. The system consists of a movable plate and two eccentric blocks; these blocks move close to the nostrils when the upper part of the visor is pressed. The blocks plug the diver's nose allowing equalization. Before donning the mask, the blocks may be moved up or down depending on the length of the diver's nose. They may also be adjusted to fit wide or narrow noses. The system also includes extenders which allow the distance between the blocks and the nose to be modified to accommodate the diver's face. The 3-D equalization system makes diving more comfortable and inhibits any undesired pressure during a dive.



REGULATOR CHARACTERISTICS

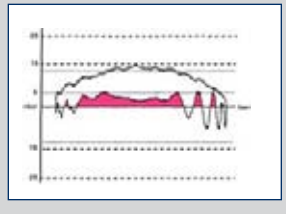
The pneumatically balanced second stage provides consistent ease of breath at any tank pressure.

An inhalation adjustment feature allows the diver to control air delivery under a variety of diving conditions. The Dive/Pre-dive venturi lever reduces free flow on the surface and provides maximum air flow while at depth.

The purge button, made by premium grade silicone rubber, has a temperature range of operations between -40°C and 70°C (-40°F and 158°F). The purge button protection bezel is made of a high impact-resistant double metallized/coated techno polymer.

USE OF CONVENTIONAL REGULATORS

A special adapter allows the connection of several kinds of regulators. The adapter is available in two sizes, medium (standard) and small. This adapter fits in place of the surface air valve. (code 33020: S, code 33021: M)



USE OF OVER-INJECTED REGULATORS

Over injected regulators have a diagram with an inhalation cracking pressure below zero. These regulators "free flow" easily, and as a result, should not be used with the Neptune Space or other Neptune masks.

1st stage SL 35 TX

The Neptune Space is available with a 1st stage (sold separately).

1st stage SL 35 TX The Neptune Space may be used with this high performance, balanced diaphragm 1st stage with anti-freeze kit. The first stage has adjustable medium pressure and is made of brass with a satin finish body, stainless steel piston, Teflon seat, and stainless steel spring.

It is available with the following characteristics:

> Standard connection 200 bar (code 9922)
> DIN connection 300 bar (code 9923)
> 2 high pressure ports 7/16 -20 UNF
> 4 Medium pressure ports 3/8-24 UNF
> Flow rate of approx. 4800 l/m at 140 bars

Neptune Space complies with CE Certification in accordance with 89/689/EEC directives under the UNI EN250 standard rules for underwater activities, including low temperatures (<50°F).

PACKAGING

The Neptune Space comes in a padded zipper bag, designed to hold other equipment such as a first stage and GSM, along with the following items:

> **1st stage connecting hose**
> **Visor protector** This transparent shield protects the mask visor during transport and handling. (Remove before diving)
> **User's manual**
> **Quick Reference Card**
> **Screw driver** This tool is for adjusting the 3-D equalization system.
> **Extensions for equalization**
> **Full Face Mask Diver Registration Card** This card must be sent to Ocean REEF in order to be included on the Owners List and receive new product and upgrade information.
> **Warranty** The Neptune Space has a Limited Lifetime warranty.

neptune space

full face mask with int. 2nd stage, hose, surface air valve	clear	small/medium medium/large	33370 33371
	black	small/medium medium/large	33372 33373
	cobalt	small/medium medium/large	33374 33375
	emerald	small/medium medium/large	33376 33377
	yellow	medium/large	33378
1st stage SL 35 TX INT for NEPTUNE SPACE			9922
1st stage SL 35 TX DIN 300 bar for NEPTUNE SPACE			9923

VISOR LIGHTS (code 33380)

Introducing a unique new accessory for the Neptune Space mask! Illuminate the undersea world with this row of 6 powerful LEDs, assembled in a removable system placed inside the mask visor.

The on/off switch (included with the lights) is installed in the surface air valve port, but does not impair the function of the surface air valve.
You may purchase a Neptune Space mask with the lights installed or buy the lights separately.

Features
> 45-lumen output/LED
> 100,000-hour light life
> 12 degree beam angle
> Light color TYP 5,500 – MAX 10,000 K°
> 1.5 hour burn time, depending on the type of rechargeable battery.
> Waterproof to 80 m (260 ft)
> Rechargeable CR 123 lithium battery included
> 12 v battery charger with vehicle lighter connector cable included

NOTE: These lights are not designed to be a primary light source.

>>>> *Magnetic switch*

>>>> *Easy battery replacement*

>>>> *Charger*

OPTIONAL ACCESSORIES

Optical Lens Support (code 33299)

A frame specially designed for the Neptune series of masks which allows the use of standard optical lenses (not included) while diving. Both lightweight and strong, the frame can be easily inserted and removed.

Polar Mesh Strap (code 9007)

A fabric strap designed for use in extrememly low temperatures. The mesh net grants a perfect fit and improved comfort. The straps are reinforced and easy to adjust.

Quick Connect hose (code 33032)

Made of chromium plated brass, this device allows the quick and easy connection and disconnection at the second stage, so that the mask may be transported free of the first stage. The length of the hose is 800 mm (32 in).

Commercial Quick Connect hose (code 33072)

This quick connection is made for commercial & professional applications. Made of chromium plated brass, it is a sturdy unit that requires two hands to disconnect. The length of the hose is 800 mm (32 in).

Dual tank valve (code 33049)

This device permits the connection of the Space regulator to two different gas sources (air/nitrox), allowing alternate use of gases without removing the full face mask. *The dual tank valve is not available in the USA or Canada.*

Swivel connection (code 33033)

Made of chromium plated brass, this device allows freer movement when attached to the second stage.

The swivel connection can be used in conjunction with the quick connect hose.

Neptune Mask Measuring Kit (code 33075)

For determining mask size, this kit contains the following items:

> Measuring tool (caliper)
> Full face mask size recommendation chart
> Measuring instructions

The Neptune Space is also available as a kit with either the GSM DC™ or GSM communication unit. See the Communications section for more details.

neptune space

NEPTUNE SPACE KIT (Neptune Space + GSM DC™)	clear	small/medium	33150
		medium/large	33151
	black	small/medium	33152
		medium/large	33153
	cobalt	small/medium	33154
		medium/large	33155
NEPTUNE SPACE KIT (Neptune Space + GSM)	black	small/medium	33156
		medium/large	33157
	cobalt	small/medium	33158
		medium/large	33159

NEPTUNE II NIRA

The Neptune II NIRA, introduced in 1998, is known world-wide. It is the integration of the Neptune II full face mask and the NIRA second stage. The NIRA (Neptune Integrated Regulator Adapter), an adjustable second stage specifically designed for the features of the Neptune II, maximizes the mask's performance. Sometimes, when a second stage makes contact with the water's surface, it begins to free flow. With the NIRA, a double position deflector, which partially covers the orifice through which air enters the second stage, eliminates free flows.
The effort required to "crack" the seal upon inhalation is manually adjustable to accommodate different conditions and depths. The NIRA is designed to be used at low temperatures, conditions in which other regulators usually freeze.
The purge button is large and oval-shaped for easy identification. A special locking device prevents the front cover from becoming unscrewed.

Neptune II NIRA has received CE Certification in accordance with 89/689/EEC directives under the UNI EN250 standard rules for underwater activities, including low temperatures (<50°F).

The Neptune II NIRA is also available with a first stage.

NEPTUNE II NIRA 6600

This has a balanced piston first stage, weighing 921 g (32 oz.). Made of chromium plated brass and steel, it contains 2 HP ports, 4 LP ports, and a rotating tower.

NEPTUNE II NIRA TR94 POLAR

This is a balanced membrane first stage, weighing 1320 g (47 oz.). Made of chromium plated brass and steel, it contains 2 HP ports, 4 LP ports, a rotating tower, and anti-freeze kit designed for low temperature use. The kit includes silicone fluorine grease with a working temperature of -63°C (-81°F). The PolarTex strap is packed with the Neptune II NIRA TR94 Polar as a standard item.

The Neptune II NIRA may be altered to be used with surface supplied air.

NEPTUNE II NIRA 50/60 PSI

This includes the Neptune II mask with a modified inter-stage pressure NIRA designed to be used with surface supplied air. This mask cannot be used with standard diving tanks.

The Neptune II NIRA 50/60 PSI *is not available in the European community.*

PACKAGING

The Neptune II NIRA comes with a carry bag along with the following items:

- **Visor protector** This transparent shield protects the mask visor during transport and handling. (Remove before diving)
- **User's manual**
- **Quick Reference Card**
- **Full Face Mask Diver Registration Card** This card must be sent to Ocean REEF in order to be included on the Owners List and receive new product and upgrade information
- **Warranty** The Neptune II has a Limited Lifetime warranty, the NIRA has a two year warranty.

neptune II nira

NEPTUNE II NIRA full face mask with int. 2nd stage and hose		black	small/medium medium/large	33317 33302
		cobalt	small/medium medium/large	33318 33303
		emerald	small/medium medium/large	33349 33350
NEPTUNE II NIRA 6600 full face mask with int. 2nd stage, hose, 6600 1st stage		Black	small/medium medium/large	33351 33306
		Cobalt	small/medium medium/large	33352 33307
NEPTUNE II NIRA TR94 POLAR full face mask with int. 2nd stage, hose, TR94 1st stage, anti-freeze kit		Black	small/medium medium/large	33353 33310
		Cobalt	small/medium medium/large	33354 33311
NEPTUNE II NIRA TR94POLAR full face mask with int. 2nd stage, hose, TR94 1st stage, antifreeze kit, DIN connection		Black	small/medium medium/large	33355 33313
		Cobalt	small/medium medium/large	33356 33314
NEPTUNE II NIRA 50/60 PSI full face mask with int. 2nd stage		Black	small/medium medium/large	33359 33360
NEPTUNE II full face mask		Black	small/medium medium/large	33357 33001
		Cobalt	small/medium medium/large	33358 33011
		Yellow	medium/large	33012

OPTIONAL ACCESSORIES

In addition to these accessories, the Neptune II NIRA may be used with any of the Neptune Space accessories.

SURFACE AIR VALVE (Code 33050)

This valve replaces the plug in the octopus port and allows the diver to breathe ambient air while on the surface, thus conserving compressed gas.

H47-BLACKENED FACE SHIELD (Code 7006)

This optical shield is painted to limit the view angle. It does not have a siloxane double coating.

NEPTUNE DRINKING DEVICE

This accessory may be used with the Neptune Space or the Neptune II NIRA and allows the diver to drink while underwater. The drinking device connects on the right octopus port and requires the oralnasal mask to be changed. A rotating straw sits inside the mask. A valve on the drinking device tube allows the diver to control the flow of liquid through the device. The drinking device kit must be assembled by an authorized Ocean REEF Service Center.

The Drinking Device Kit contains the following items:

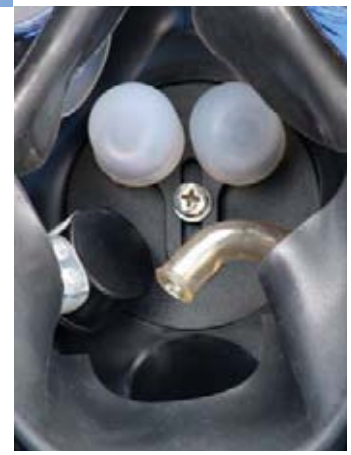
> Internal silicone and rotating straw, oralnasal mask
> Drinking device connection to the mask
> Tube, valve, and quick connection
> Neptune water pouch

Drinking device kit only (code 33080)
Drinking device kit & mask assembly (code 33081)
Neptune water pouch, 1 L (.26 gal) (code 33082)

>>>> *Neptune Water Pouch*

>>>> *Valve*

>>>> *Quick Connections*



Use of the drinking device is strictly limited to commercial and expert certified divers.

Since the beginning of scuba diving, divers have wanted to talk to each other underwater. So far, the only feasible systems for audio communication have been available only to commercial divers. Unfortunately, these systems were also complicated, cumbersome, and expensive. However, Ocean REEF has designed a communication system which is easy to use, lightweight, and within a recreational diver's budget. Our system has many applications for both the professional and recreational diver, such as scuba instruction, marine research, underwater surveying, and guided dive tours, just to name a few. The Ocean REEF underwater communication system adds a whole new dimension to dive safety and enjoyment by connecting divers with each other and with partners on the surface.

GSM DC™ (code 33122)

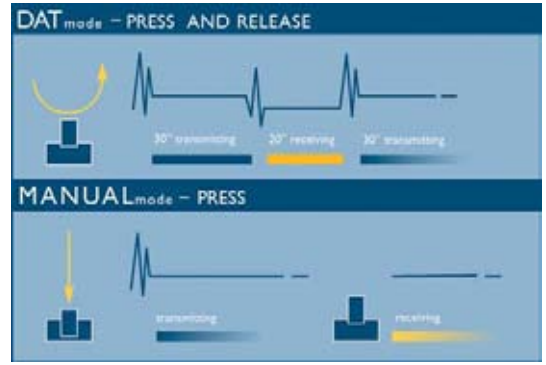
The GSM DC™ underwater transceiver unit incorporates the latest innovations in underwater ultrasonic 2-way radio communication. The unit features a digital driver for vocal message equalization, an automatic system for activating transmission (DAT™), and a double transceiver channel. The GSM DC™ is designed for use on the Neptune full face masks, but can be used on any full face masks equipped with a standard DIN female connection. The standard frequency (channel 1) is the same for all Neptune System units, so it is possible to communicate with any other GSM DC™, GSM DAT™, GSM, M-101A receive units, M-105 Digital surface units, and all previous surface units (M-103, M-104, M-105).

Underwater communication is accomplished through ultrasound and can be used in two unique modes, manual transmission mode and automatic transmission mode. To start communication in manual PTT (Push to Talk) mode, press and hold the "A" button (see picture) to transmit and release the button to receive. The "B" button activates and de-activates the automatic transmission mode, DAT™ (see later). The GSM DC™ automatically begins receiving capabilities upon contact with the water.

The GSM DC™ is a dual channel (DC) unit, which means it is equipped with two transceiver channels. By pressing buttons “A” and “B”, it is possible to change the frequency channel. Any time the channel is changed, a recorded message informs the diver of which channel has been activated (channel 1 or channel 2). The two channels allow different diving groups to operate in the same area with limited interference and confusion.

The GSM DC™ sound quality depends upon both the D-Mic microphone, a special dynamic microphone with high acoustic qualities, and the microprocessor (DSP), which takes the digitized vocal message and filters out unwanted noise such as exhaust, air bubbles, or mask vibrations.

The D-Mic housing has a hydrophonic membrane which is permeable to air, but prevents water form passing through the electronics. The membrane’s reduced thickness limits any reduction of the vocal signal. The permeability of the membrane keeps the internal pressure equalized with the external pressure, enabling the microphone to be used at practically any depth. The D-Mic is installed onto the transmission button contacts and can be made compatible with all previous GSM versions by slightly altering the transmission button contacts; this can be performed at any Ocean REEF service center. When speaking inside a full face mask, a series of reflections and vibrations, called distorted frequencies, are generated. “High frequencies” are caused by mask visor vibrations. “Low frequencies” are caused by the noise from air bubbles. If they are not removed, these distorted frequencies will be amplified and transmitted to the receiver unit, resulting in low intelligibility. Our DSP microprocessor removes these frequencies making communication loud and clear.



DAT™ (Digital Activation Transmission)

This automatic activation system is an exciting innovation in underwater communication, exclusively from Ocean REEF. The DAT™ system allows the option of transmitting in a hands-free mode rather than manual mode. To activate transmission, quickly press and release the “B” button. Once the button is pressed, a series of impulses are sent out, automatically keeping the unit in transmit mode for 30 seconds. After the initial 30 seconds of transmit mode, the unit will return to receive mode for 20 seconds accompanied by a series of impulses in a different tone from the first. This cycle continues until the “B” button is pressed for at least 1 second, which returns the unit to manual mode. DAT™ is useful when it is necessary to have both hands free while transmitting, making diving more comfortable and safe. Another benefit of the DAT™ system comes in the case of an emergency; by activating the DAT™ a series of impulses will emit every 30-20-30 seconds, which can be received at a great distance by search and rescue workers and other divers.

GSM Global Submarine Messenger (code 33105)

The GSM is the basic underwater transceiver unit. It has manual mode only with PTT transmission and automatic receiving. It operates on one channel (channel 1 – 31.768 kHz). The GSM has all the characteristics of the GSM DC™, excluding the DAT™ and dual channels.

New for 2007! The autonomy of the unit (using a single 9v alkaline battery) has been increased to approximately 30 hours in standby mode. The 2007 units now have 3 times the autonomy of previous generations of the GSM.

NACS™ (Neptune Adjustable Communication Support) (code 33054)

The patented NACS™ is an adjustable support arm for the GSM DC™, GSM, or M101A receiving unit. It is installed on the Neptune mask on the left side of the visor and prevents the communication unit from hanging on the mask strap. By relieving the weight of the communication unit, the NACS™ also allows the mask strap to slide easily through the buckle; thus, the strap can stay loose while the mask is donned and the communicator stays out of the way. The NACS™ can be adjusted for tilt and distance between the communication unit and the visor.

All GSM models must be used with the NACS™.

The new GSM DC™, GSM and M101A units have new software/hardware for the removal of "dirty frequencies" such as noise from bubbles and echoes inside of the visor.

The resin component of the underwater communication unit speaker has been redesigned to withstand depth pressure more efficiently.

Lastly, the amplification stage of the hardware has also been improved.

The new units can be identified by a lightning bolt on the side of the unit.

M100 Portable Surface Transceiver (code 33165)

The M100 is a portable surface transceiver unit that may be worn on the operator's belt. This unit is high performance, compact, and easy to use. It is made to respond to the demands of communicating with divers in action.

The main unit has a PTT (Push to Talk) button and a headphone/microphone connector. The unit turns on when the headphone/microphone is connected to the main unit. The unit turns off automatically when the headphone/microphone is removed.
A 10 meter (30 feet) transducer cable connects to the main unit and is lowered into the water. The operator may control the depth of the transducer.

It operates on one channel and uses a 9v replaceable alkaline battery with autonomy of approximately 9 hours. The range of operation is approx 250 meters (750 feet).

The unit comes with the following items:
> 10 m (30 ft) transducer cable
> Headphone/microphone
> Screwdriver

M105 DIGITAL
(code 33109: 220v, code 33114: 110v)

The M105 Digital is a surface to diver communication unit which allows surface personnel to talk with divers in the water and vice versa. The unit uses a 6 VDC lead battery, allowing up to 48 hours of operation, or may be hardwired to a 12 VDC source. The system is activated only when the transducer is connected, preventing unwanted loss of battery power. To start communication the transducer must be lowered into the water; the standard cable length for the transducer is 30 ft. Transmission is activated by pressing the microphone button, which will emit a short beep letting divers know transmission is about to begin. It will return to receive mode when the button is released.

The M105 Digital comes standard with the following items:

> Headphone connection
> Volume control
> Loudspeaker
> Water resistant case w/ pressure compensation valve
> Battery charger
> Connector and cable for external 12 VDC source
> Transducer cable bag Available accessories:
> Audio out cable
> Headphones

M105 DIGITAL DC (code 33160: 220v, code 33161: 110v)

This unit has the same characteristics as the M105 Digital, but with the addition of a second channel. The operator may easily switch from channel 1 to channel 2. When switching between channels, a recorded message informs the operator of which channel has been activated.

specifications

	GSM	GSM DC™	M101A	M-105 Digital	M-105 Digital DC	M100
Code	33105	33122	33107	33109 (220v), 33114 (110v)	33160 (220v), 33161 (110v)	33165
Type	Wireless ultrasonic	Wireless ultrasonic	Wireless ultrasonic	Wireless ultrasonic	Wireless ultrasonic	Wireless ultrasonic
Activation	Automatic	Automatic	Automatic	Upon connection/switch	Upon connection/switch	Upon connection
Transmission	PTT	PTT	Receive only	PTT	PTT	PTT
Receiving	Automatic	Automatic	Automatic	Automatic	Automatic	Automatic
System type	H-SSB	H-SSB	H-SSB	H-SSB	H-SSB	H-SSB
Frequency	32.768 kHz	32.768 kHz = ch. 1 41.000kHz = ch. 2	32.768 kHz	32.768 kHz	32.768 kHz = ch. 1 41.000 kHz = ch. 2	32.768 kHz
Working range (*)	200m/600ft	200m/600ft	200m/600ft	200m/600ft	200m/600ft	200 m/600 ft
Rated depth (**)	40m/120ft	40m/120ft	40m/120ft	Surface unit	Surface unit	
Powered by	9v alkaline	9v alkaline	9v alkaline	Rechargeable 6v lead	Rechargeable 6v lead	9v alkaline
Autonomy (total)	30h	9h	30 h	48h	48h	30 h
Low battery autonomy (after alarm starts)	1h	1h	1h	1.5h	1.5h	1 h
Low battery alarm	1 beep/30 sec under 6.8v	1 beep/30 sec under 7.5 v	1 beep/30 sec under 6.8 v	1 beep/30 sec under 4.8 v	1 beep/30 sec under 4.8 v	1 beep/30 sec under 6.8 v
DAT™	No	Yes	No	No	No	No
Transmit/receive cycle	No	Yes, DAT™ mode-30 sec transmit-20 sec receive	No	No	No	
Squelch	Automatic	Automatic	Automatic	Automatic	Automatic	Automatic
Weight with batteries	370g/12.9 oz	370g/12.9 oz	290 g/12.9 oz	2.3kg/5 lbs	2.3 kg/5 lbs	730g/25oz

(*) The operating distance is effected by obstacles, air bubbles, thermo-clines, temperature, and salinity

(**) Does not include other depth limits that may apply

M105 D MARINER (code 33118)

The M105 D Mariner is a surface to diver communication unit that may be installed on board a boat.

The kit consists of the following items:

> M105 Digital electronics, assembled on an anodized aluminum panel (can be arranged horizontally or vertically)
> 10 m cable and transducer
> PTT microphone
> Marine loudspeaker

The M105 D Mariner has the same operations and technical characteristics of the M105 Digital (see chart); however, the M-105 D Mariner uses a 12 v power source. Upon request, the cable and transducer may be made to different lengths to accommodate fixed installations. The M105 D Mariner is an ideal unit for fixed installation on boats because it not only connects to a main power supply, but also to an internal loudspeaker system.

M101A (code 33107)

The M101A is a receive-only unit operating on one channel, (channel 1 – 32.768 KHz) the same frequency of GSM units, M100, M105 units, and any previous Ocean REEF communication systems. The M101A fits on any standard mask strap, conventional masks or full face models. The unit automatically activates upon contact with the water. The M101A uses a 9v alkaline battery and has a “low battery” alarm which beeps every 30 seconds when the battery is low.

The M101A’s reception is so strong that it is not always necessary to attach it to the mask strap. A diver may hold the unit or attach it to a BC, allowing other divers to listen to the transmission (dependent upon environmental conditions and distance).

New for 2007! The M101A unit’s total battery autonomy has been increased to approximately 30 hours. The 2007 units now have 3 times the autonomy of previous generations of the M101A.

M101AR (code 33130)

The M101AR is a receiving unit for underwater video cameras. The unit connects to the “audio in” port of an underwater video camera to record conversations among divers and/or with the surface.

The M101AR cable (1m/3ft) must be connected to the audio/video port of the video camera housing while the receive unit is attached to a Neptune mask, in order to control the quality of the recorded audio. The M101AR may hang on the camera housing or BC jacket. The technical characteristics are the same as the M101A (see chart).

NEPTUNE KIT

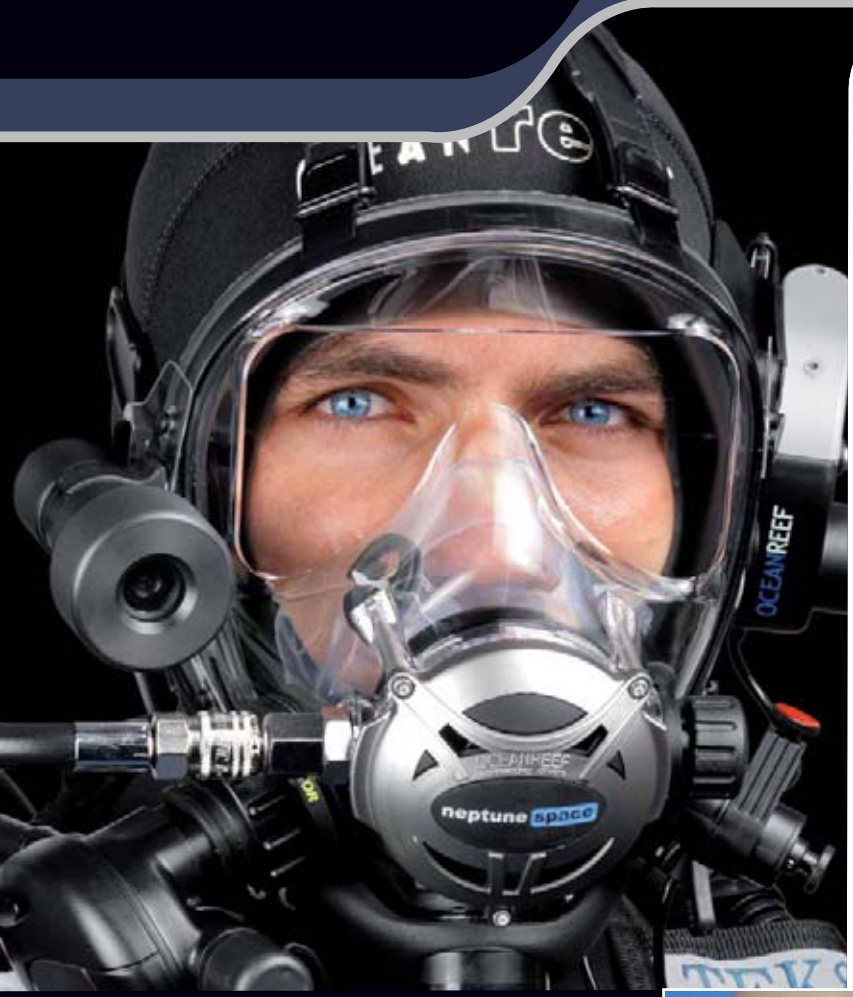
The Neptune Kit consists of a Neptune II NIRA mask and a GSM DC™ or GSM communication unit packaged together. The end-user need only insert a battery, connect to the first stage, and begin diving! The Neptune Kit also includes a nylon carry-bag with ventilated holes to allow drainage.

The full Neptune Kit includes the following items:

- **Neptune II NIRA**
- **GSM DC™/GSM with NACS™**
- **Hose**
- **Maintenance tools**
- **Carry bag**
- **Manuals, warranty, FFM diver card**

neptune kit

NEPTUNE KIT (Neptune II NIRA + GSM)		black	small/medium medium/large	33145 33135
		cobalt	small/medium medium/large	33146 33136
NEPTUNE KIT (Neptune II NIRA + GSM DC™)		black	small/medium medium/large	33142 33132
		cobalt	small/medium medium/large	33143 33133



GAMMA 105 (code 33119: PAL, code 33120: NTSC)

The Gamma 105 is an integrated audio/video system consisting of the M105 Digital and a CCD Micro Video Camera, which may be fixed in an underwater housing, attached to a Neptune mask, or held by the diver. This system makes it possible for those on the surface to communicate with an unlimited number of divers, within the range of the M105, while simultaneously monitoring the underwater video footage.

The camera is hardwired via a 40 m (120 ft) cable to a 4 inch color LCD monitor. The Gamma 105 system includes the following items:

> Ultrasonic surface communication unit: 10 m (33 ft) transducer cable, microphone, external power supply cable, audio port, headphone port, volume control, and loudspeaker
> CCD Micro Video Camera with underwater housing and mounting bracket
> 40 m (120 ft) camera cable
> 7 in 16:9 color LCD monitor, loudspeaker, audio and video port, brightness and color controls
> Video port for external video recorder or monitor
> 12v battery
> Battery charger connector
> 12v battery charger

GAMMA 105 CAMERA & ADJUSTABLE BRACKET

(code 8682: PAL, code 8683: NTSC)

This is an accessory for the Gamma 105. The camera housing may be removed from the bracket without tools, even during a dive. The camera rotates up and down and easily connects to any Neptune mask. NSTC size is larger than PAL size.

ALPHA PRO

The Alpha Pro is a hardwired, full-duplex underwater communication system for conversations between the surface and one or two divers. The system consists of the following items:

Surface unit

> 2 ports for 2 communication cables
> On/off and volume adjustment switches
> Microphone
> Switch for communication between surface & diver 1, surface & diver 2, surface & diver 1 & diver 2
> Headset port (headset optional)
> External power charger, 9/12v (cable optional)
> Battery charger port
> Incorporated speaker
> Stand-by autonomy: 24h
> Audio/video recall
> 6v rechargeable battery

Surface/Diver unit cable, 50m (165 ft) with waterproof connections

Underwater unit

> Waterproof piezoelectric speaker
> D-Mic microphone
> Full duplex system
> Audio/video recall button

By adding an additional surface/diver cable and underwater unit, the Alpha Pro may communicate with two divers at the same time. It is also possible for the surface to switch between each of the divers.
(Possible configurations: surface/diver 1, surface/diver 2, surface/diver 1/diver 2) If the unit is set for surface/diver 1/diver 2, the two divers would also be able to communicate with each other.

alpha pro	
Alpha Pro (surface unit + 50 m cable + underwater unit) 220 v	33127
Alpha Pro (surface unit + 50 m cable + underwater unit) 110 v	33128
Alpha Pro 50 m cable	8638
Alpha Pro Underwater unit	8652

Professional surface/diver cable

This cable is avalaible as an accessory to the Alpha Pro. It is a 4-wire cable with yellow rope exterior. The cable's diameter is 8mm with a resistance of 1500 Newtons. The Professional cable is available in a 50 m (165 ft) length, which includes waterproof rubber connectors and rope, or may also be purchased by the meter.
A carry-bag is included with the cable and sold separately as an accessory.

Professional Cable with rubber connectors 4 pins w/rope	yellow	50 meters	8489
Professional Cable with rubber connectors 4 pins w/rope	yellow	per meter	8488
Dry rubber connectors 4 pins			8487
Connectors A to surface unit ALPHA PRO			3108
Underwater unit for Professional Cable			8668
Carry-bag for ALPHA PRO Professional Cable 50 mt	orange		8686
Carry-bag for ALPHA PRO Professional Cable 75-100 mt	orange		8687

SHIELD DISPLAY

BUILT-IN DEPTH AND TANK PRESSURE DISPLAY FOR NEPTUNE MASK

To check the depth and tank pressure while diving, divers must look at their wrists or console display instruments. However, with Ocean REEF's Shield Display this important information is brought directly to the mask face shield, improving diver comfort and efficiency. The Shield Display is sold as an accessory and is available for installation on any Neptune mask. The Shield Display system consists of the following items:

> 2 LED displays attached inside the face shield (depth displayed on right, tank pressure displayed on left) and wired through the octopus port
> Quick connection for main electronic unit
> Electronic unit mounted on BC tank strap; the high pressure hose form the regulator 1st stage plugs into the main unit, which also has a depth sensor
> Electronic connection surface air valve, allows connection of the Shield Display while still allowing the diver to breathe surface air.

How it works The Shield Display automatically turns on upon submersion. The main unit mounts on the BC tank strap and connects to the mask through the octopus port. An LED display automatically notes changes in tank pressure and depth. Brightness may be adjusted by a switch located on the electronic connection surface air valve, to accommodate daytime or nighttime use. The LED may be turned off/on during the dive by pressing a button on the quick connection. The LED will turn on automatically if the tank pressure is low and/or depth is 40m (120 ft) or greater.

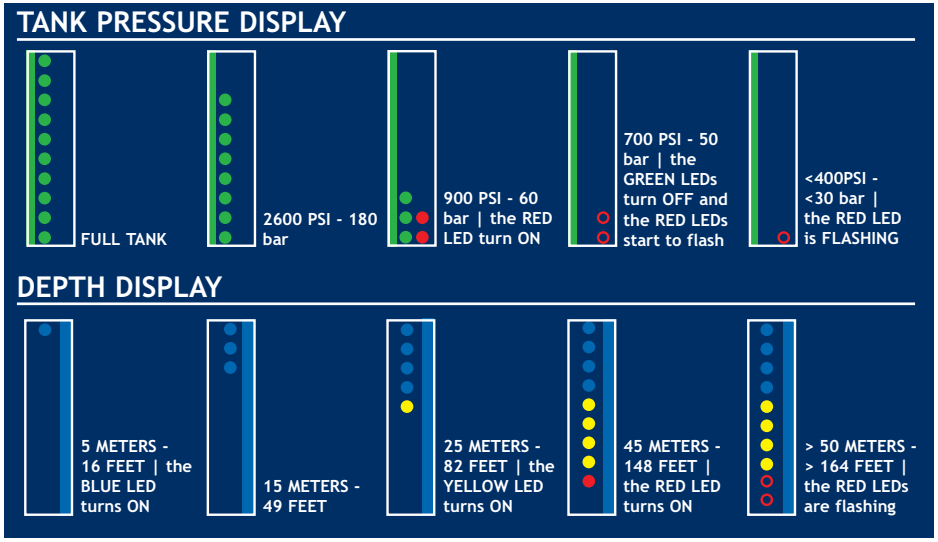
Tank Pressure The tank pressure display has two columns of LED. When the tank is full, all displays show green. As pressure decreases, the LEDs at the top turn off. As the pressure approaches 60 bar/900 psi the lights become red, and when the pressure reaches 50 bar/700 psi the red LED flashes.

Depth At the beginning of the dive, only the reference bar turns on, to indicate that the unit is working, and displays a depth of 50 m (164 ft). As the diver descends past 5 m (15 ft), the LED lights as the diver descends past the corresponding depths. At 45 m (148 ft) the LED turns red. At 50 m (164 ft) the red LED flashes.

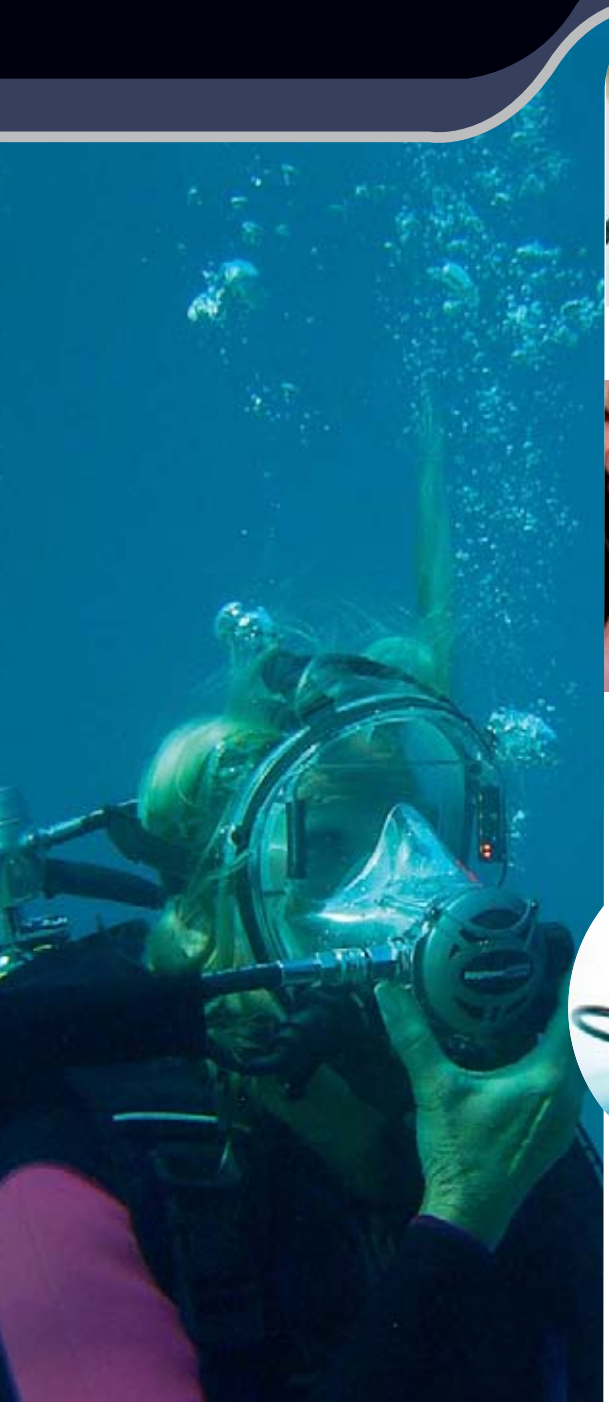
It is important to remember that the Shield Display is a support system and is NOT an alternative to conventional pressure and depth gauges or computers. The Shield Display provides information at a glance, allowing divers to quickly evaluate the general conditions of their dive.

specifications

Powered by	12v 4A rechargeable lead battery
Autonomy (with 60% of LED on)	6 hours
Low battery autonomy (after alarm)	30 min
Standby power	900 microampere
Depth/pressure tolerance	± 2%
Depth sensor - max pressure	8 bar/116 psi (70 m/230 ft)
HP Air sensor - max applicable pressure	450 bar/6500 psi
Start up	Automatic (wet contacts)
Turn off	Automatic
Alarms	Low battery, depth > 50 m/165 ft, out of air, not working
Weight (dry)	1.5 kg/3.3 lbs
LP Hose with quick connection	Enclosed
Charger	Enclosed



SERVICE & MERCHANDISING



NEPTUNE SPACE & NIRA ADJUSTMENT TOOL (code 9754)

An essential tool for every Neptune System Service Center

PORTABLE TEST BENCH (code 9805)

Portable test bench for Neptune II NIRA and Space

NEPTUNE SPACE REGULATOR ADJUSTMENT TOOL (code 9794)

Tool fits on a conventional test bench. A technician may set up and check the regulator prior to mask assembly.

SPACE SERVICING KIT (code 9799)

Contains the tools required for servicing the Neptune Space mask in combination with the regalator adjustment tool (code 9794).

NEPTUNE SPACE HEAD DISPLAY (code 35018)

Non-working demo unit

M101A HEAD DISPLAY (code 35003)

Non-working demo unit

C-DIVERS POLO SHIRT

small	(code 34131)
medium	(code 34132)
large	(code 34133)
x-large	(code 34134)
xx-large	(code 34135)

C-DIVERS JACKET

small	(code 34136)
medium	(code 34137)
large	(code 34138)
x-large	(code 34139)

NEPTUNE T-SHIRT

medium	(code 34106)
large	(code 34107)
x-large	(code 34108)
xx-large	(code 34110)

THE FUTURE T-SHIRT

medium	(code 34117)
large	(code 34118)
x-large	(code 34119)
xx-large	(code 34120)

OCEAN REEF T-SHIRT

medium	(code 34202)
large	(code 34203)
x-large	(code 34204)
xx-large	(code 34205)

"SUPER PIN" T-SHIRT

medium	(code 34124)
large	(code 34125)
x-large	(code 34126)
xx-large	(code 34127)

SAILOR KEY RING (code 34109)

C-DIVERS BELT

small	(code 34507)
medium	(code 34508)
large	(code 34509)

C-DIVERS CAP (code 34506)

C-DIVERS POLO SHIRT

C-DIVERS JACKET *NEPTUNE T-SHIRT* *THE FUTURE T-SHIRT* *OCEAN REEF T-SHIRT* *"SUPER PIN" T-SHIRT*

NEPTUNE SYSTEM TRAINING PROGRAM

The Neptune System Training Program (NSTP) is designed to teach safe usage of the Neptune System. The program has been developed by instructors and course directors from various agencies and is approved as a specialty course. Ocean REEF provides instructors and trainers with a complete set of educational equipment.

INSTRUCTOR COURSE KIT (code 35002)

Designed for Instructor Trainers or Course Directors*
The Instructor Course kit includes the following items:
> Instructor Course book
> Diver Course book
> CD with presentation slides
> Neptune II NIRA & Communication systems manual
> Ocean REEF shirt, Instructor cap, & Instructor Trainer patch
> Catalog and promotional items
*Must be an active Instructor Trainer or Course Director with an accredited agency

DIVER COURSE KIT (code 35001)

Designed for instructors*
The Diver Course kit includes the following items:
> Diver Course book
> CD with presentation slides
> Neptune II NIRA & Communication systems manual
> Ocean REEF shirt, Instructor cap, & Instructor patch
> Catalog and promotional items
*Must be an active Instructor with an accredited agency.

DIVER KIT (code 35005)

Designed for students
The Diver kit includes the following items:
> Document bag
> Course book
> Catalog and promotional items
Ocean REEF periodically organizes Instructor Trainer courses at its premises, by invitation only.
The course program is published on the internet at **www.oceanreefgroup.com**
A list of Instructors and Instructor Trainers is also available on our website.

Ocean REEF has created special packages specifically to meet the demands of scuba instruction and guided tours.

SPACE SCHOOL PACK (code 34990)

Designed for training, renting, and organized dives, the pack includes the following items:

> 4 Neptune Space masks
> Training video and manuals
> Ocean Reef t-shirt and cap
> Ocean Reef flag and promotional items

SPACE EXCURSION PACK (code 34991)

Designed for instructors and guided tours

The instructor wears a Neptune Space with GSM while the students use M101A receivers. Because the instructor can audibly communicate with the students while underwater, they may make adjustments without having to surface. This dramatically increases the efficiency of the class and the comfort level of the students. The pack includes the following items:

> 1 Neptune Space mask
> 1 GSM tranceiver unit
> 4 M101A receiver units
> Training video and manuals
> Ocean REEF t-shirt and cap
> Ocean REEF flag and promotional items

SPACE NDC PACK (code 34992)

Designed for instructors, for communicating with divers and the surface

The pack includes the following items:

> 2 Neptune Space masks
> 2 GSM tranceiver units
> 4 M101A receiver units
> Training video and manuals
> Ocean REEF t-shirt and cap
> Ocean REEF flag and promotional items

SPACE NDC PACK DC (code 34993)

> Space NDC PACK with GSM DC in place of GSM

Marine Research and Education

The Neptune System is a valuable tool for scientific research and education. Audio/video capabilities allow conferences between divers in an aquarium or pool and researchers on the surface or even students in a classroom. Ocean REEF equipment has been officially adopted and used to great success at the North Carolina Aquariums and the Birch Aquarium at Scripps Institution of Oceanography.

COMMERCIAL AND PROFESSIONAL APPLICATIONS

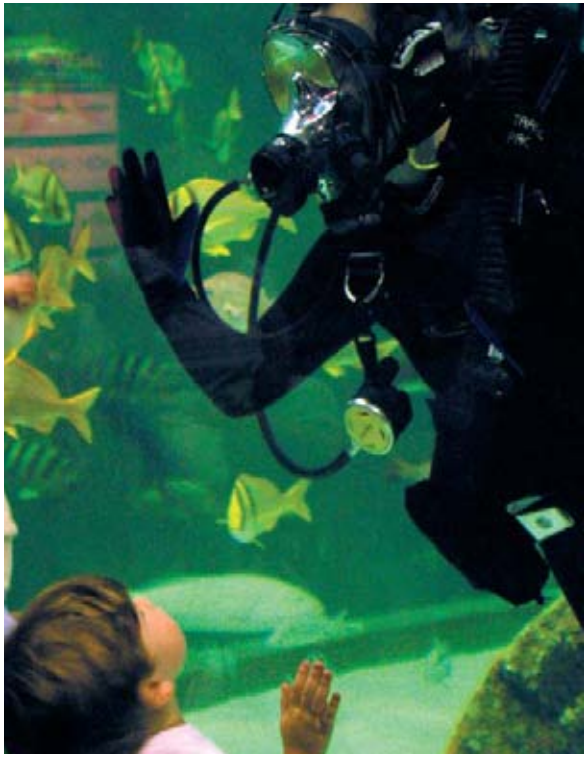
The Neptune System is used by **Public Safety** organizations because of such features as the mask's lightness, field of vision, easiness to don or doff, stability at low pressure, impact resistance, and reliability.

The Neptune System has been used in **Dry-docks**, when divers must communicate with each other and the surface during the positioning phases of ships.

The system has been used in many **commercial activities** such as cable spreading, portal dock maintenance, recovery operations, and technical assistance for boats. Often, these dives are for extended periods of time in frigid waters. During these operations, divers require thermal protection, physical comfort, excellent visibility, and communication abilities. The ability to breathe through one's nose while avoiding the discomfort of holding a regulator in one's mouth makes the Neptune series of masks excellent tools for demanding operations.

When working in **polluted environments**, the Neptune series of masks offers resistance against chemical agents due to materials used in production. The masks also protect the diver's face from any harmful agents.

Police Force teams use the Neptune System in investigations. They appreciate the equipment's durability and ease of use.



Numerous **scientific expeditions** have used the Neptune System during projects in the Arctic, the Amazon, Antarctica, Australia, the Spanish Pyrenees, and California.

Civil Protection Agencies, Marine Biologists, Aquarium personnel, and **International Marine Reserves** are just a few of the other organizations which use the Neptune System.

Photography by: e-motion

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BIRCH AQUARIUM
at Scripps Institution of Oceanography, UCSD

Ocean REEF is a corporate partner with the Birch Aquarium at Scripps Institution of Oceanography.